

Remarks

Favorable reconsideration of this application, in view of the above-amendments and in light of the following remarks and discussion, is respectfully requested.

Applicants respectfully request entry of the response, as the response places the application in clear condition for allowance, or alternatively places the claims in better form for appeal. Specifically, Applicants have amended independent claims as suggested by the Examiner to overcome a rejection under 35 U.S.C. § 112. Further, Applicants respectfully submit herewith arguments regarding the patentability of the claims over the applied references. Upon entry of the response, Claims 12, 13, and 24-28 are pending; Claims 12 and 13 having been presently amended.

Applicants express thanks for the Examiner's indication that Claims 24 and 25 include allowable subject matter, and therefore would be allowable if rewritten in independent form.

In the outstanding Office Action, the changes to Figure 17 were not approved by the Examiner. In response, as shown in the attached replacement sheet, Applicants have amended Figure 17 to include the legend "Prior Art."

Applicants respectfully submit herewith, for the Examiner's convenience, English language translations of Japanese Publication Nos. 61-88807 to Miyanaga et al. (Miyanaga), 56-161811 to Hasegawa, and 58-81113 to Kato et al. (Kato). Thus, Applicants respectfully request that the Examiner evidence consideration of the complete English language translations on the enclosed List of References Cited by Applicant, and return the executed List with the next Patent Office communication.

In the outstanding Office Action, Claims 12, 13, and 24-28 were rejected under 35 U.S.C. § 112, second paragraph. In response, Applicants have amended each of independent Claims 12 and 13 to recite "connected to" in place of the previous recitations of "provided

in,” in accordance with the Examiner’s helpful suggestion. Thus, Applicants respectfully request that the rejection of Claims 12, 13, and 24-28 under 35 U.S.C. § 112 be withdrawn.

In the outstanding Office Action, Claims 12, 13, and 26-28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Figure 17 of the application (Figure 17) or U.S. Patent No. 4,697,734 to Ueda and U.S. Patent No. 4,698,980 to Noguchi et al. (Noguchi).¹ Claims 12, 13, and 26-28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ueda and Noguchi, and further in view of any one of Japanese Publication No. 6-270644 (JP’644) or U.S. Patent No. 5,881,994 to Stevenson et al. (Stevenson) or U.S. Patent No. 4,638,977 to Vonhausen or Kato or Miyanaga. Applicants respectfully request that the rejections of the claims be withdrawn for the following reasons.

The present invention is directed to air mixing damper apparatuses. Independent Claim 12 recites a mechanism provided between a plate door type air mixing damper for opening and closing an air introducing face of a heater core, and a rotation type lever of an actuator for driving the air mixing damper, the mechanism for adjusting rotational speed of the air mixing damper to linearly change the temperature of discharged air with respect to the operation of the lever of the actuator. Independent Claim 13 recites a mechanism provided between a plate door type air mixing damper for opening and closing an air introducing face of a heater core, and a rotation type lever of an actuator for driving the air mixing damper, the mechanism for adjusting rotational speed at an initial opening stage and a final opening stage of the air mixing damper, to a speed lower than at an intermediate opening stage.

Regarding independent Claim 12, Ueda is directed to an air-mix door control apparatus for an air conditioner of an automobile. Figure 3, for example, of Ueda, shows a relationship between an opening of an air-mix door 11 and a blow-out air temperature in the air conditioner. A change in a discharge air temperature with respect to the opening of the

¹ Applicants respectfully assert that Figure 17 of the application is the same as Figure 3 of Ueda. Thus, Applicants respectfully assert that although the rejections are discussed primarily with regard to Ueda, the discussion should be understood so as to be equally applicable with respect to Figure 17 of the application.

air-mix door 11 is not constant but can be divided into three ranges (K, L, M) in accordance with a gradient of the discharge air temperature with respect to a change of opening of the air-mix door 11.²

However, Applicants respectfully assert that Ueda does not teach or suggest the claimed features of a mechanism for adjusting rotational speed of an air mixing damper to linearly change a temperature of discharged air with respect to an operation of a lever of an actuator, as recited in independent Claim 12. Rather, Ueda states that the change in the discharge air temperature with respect to the opening of the air-mix door 11 is not constant but can be divided into three ranges. Further, Figure 3 of Ueda shows that the temperature changes among the ranges are not linear.

Thus, Applicants respectfully assert that Ueda does not provide advantages of the claimed air mixing damper apparatus, including making an occupant feel that a movement of an operating lever by the occupant corresponds to an actual temperature change. Rather, Applicants respectfully assert that the air-mix door control of Ueda results in disadvantages including that during an interval that the air-mix door 11 is opened from a fully closed to a slightly opened position (i.e., from a leftmost position in the range K to some rightward position in the range K, as shown in Figure 3 of Ueda), and during an interval from a little before the fully open position through to a fully opened position (i.e., from some position before a rightmost position in the range M to the rightmost position in the range M), the temperature changes at these times are severe (i.e., non-linear).³

Specifically, independent Claim 12 recites “the mechanism for adjusting rotational speed of the air mixing damper to linearly change the temperature of discharged air with respect to the operation of the lever of the actuator.”

² Column 5, lines 18-32.

³ Page 3, lines 1-24, of the originally filed specification.

The Office Action relies on Noguchi, JP'644, Stevenson, Vonhausen, Kato, and Miyanaga in an attempt to remedy the deficiencies of Ueda. However, Applicants respectfully assert that none of Noguchi, JP'644, Stevenson, Vonhausen, Kato, and Miyanaga teaches or suggests the claimed features recited in independent Claim 12.

Noguchi is directed to an apparatus for controlling a vehicle air conditioner. As shown in Figure 8, for example, of Noguchi, a cam mechanism 50 for transmitting a rotary power of an output shaft 6 to an air mixing shutter 1 consists of a rectangular rotary member 107 interlocked to the output shaft 6 and a response member 108 slidably connected to the rotary member 107 for linear motion to turn the air mixing shutter 1.⁴

However, Applicants respectfully assert that Noguchi also does not teach or suggest the claimed features of a mechanism for adjusting rotational speed of an air mixing damper to linearly change a temperature of discharged air with respect to an operation of a lever of an actuator, as recited in independent Claim 12. Rather, while Noguchi at most states a linear relationship between the output shaft 6 and the air mixing shutter 1, Noguchi does not state that a temperature is linearly changed with respect to the operation of the output shaft 6, for example.

Further, as discussed with respect to Ueda, Applicants respectfully assert that Noguchi does not provide advantages of the claimed air mixing damper apparatus, but rather that the linear relationship between the output shaft 6 and the air mixing shutter 1 results in disadvantages including that during an interval that the air mixing shutter 1 is opened from a fully closed to a slightly opened position, and during an interval from a little before the fully open position through to a fully opened position, the temperature changes at these times are severe (i.e., non-linear).

⁴ Column 5, lines 36-48.

With respect to JP'644, Stevenson, Vonhausen, Kato, and Miyanaga, Applicants respectfully assert that at most these references also show linear relationships between movements of dampers and actuators, and therefore also do not teach or suggest the claimed features of a mechanism for adjusting rotational speed of an air mixing damper to linearly change a temperature of discharged air with respect to an operation of a lever of an actuator, as recited in independent Claim 12. In accordance with the Examiner's initial burden to ascertain differences between prior art and the claimed invention, as set forth in MPEP § 2141.02, Applicants respectfully request the Examiner's guidance as to alleged disclosure of such features in the above-noted references.

Thus, for the above reasons, Applicants respectfully assert that none of Ueda, Noguchi, JP'644, Stevenson, Vonhausen, Kato, and Miyanaga, whether taken alone or in combination, teach or suggest the claimed features recited in independent Claim 12. Therefore, Applicants respectfully request that the rejections of independent Claim 12 under 35 U.S.C. § 103(a) be withdrawn and the independent claim allowed.

Regarding independent Claim 13, as discussed above Ueda states a change in the discharge air temperature with respect to the opening of the air-mix door 11 is not constant but can be divided into three ranges (K, L, M) in accordance with the gradient of the discharge air temperature with respect to the change of opening of the air-mix door 11

However, Applicants respectfully assert that Ueda does not teach or suggest the claimed features of a mechanism for adjusting rotational speed at an initial opening stage and a final opening stage of an air mixing damper, to a speed lower than at an intermediate opening stage, as recited in independent Claim 13. Rather, Applicants respectfully assert that Ueda appears to show, in Figure 3, that the rate of change of the discharge air temperature is higher at the initial opening stage (i.e., range K) and the final opening stage (i.e., range M),

than at an intermediate opening stage (i.e., range L). Further, Ueda does not state a relationship among rotational speeds at ranges K, L, and M.

Further, as discussed with respect to independent Claim 12, Applicants respectfully assert that Ueda does not provide the above noted advantages of the claimed air mixing damper apparatus, but rather suffers from the noted disadvantages.

The Office Action relies on Noguchi, JP'644, Stevenson, Vonhausen, Kato, and Miyanaga in an attempt to remedy the deficiencies of Ueda. However, Applicants respectfully assert that none of Noguchi, JP'644, Stevenson, Vonhausen, Kato, and Miyanaga teaches or suggests, and the Office Action does not rely on any of Noguchi, JP'644, Stevenson, Vonhausen, Kato, and Miyanaga to teach or suggest, the claimed features of a mechanism for adjusting rotational speed at an initial opening stage and a final opening stage of an air mixing damper, to a speed lower than at an intermediate opening stage, as recited in independent Claim 13.

Thus, for the above reasons, Applicants respectfully assert that none of Ueda, Noguchi, JP'644, Stevenson, Vonhausen, Kato, and Miyanaga, whether taken alone or in combination, teach or suggest the claimed features recited in independent Claim 13. Therefore, Applicants respectfully request that the rejections of independent Claim 13 under 35 U.S.C. § 103(a) be withdrawn and the independent claim allowed.

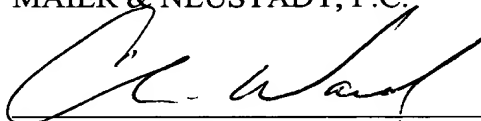
Dependent Claims 24 and 27 depend from independent Claim 12. Dependent Claims 25, 26, and 28 depend from independent Claim 13. Thus, Applicants respectfully assert that the dependent claims are allowable for at least the same reasons as the independent claims from which they depend, as well as for their own recited features. Therefore, Applicants respectfully request that the rejections of dependent Claims 24-28 under 35 U.S.C. § 103(a) be withdrawn and the independent claims allowed.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 12, 13, and 24-28 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below listed telephone number.

Respectfully submitted,

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